

Lab 14 - FAX over IP

CCNA Voice Lab 14

FAX over IP

Lab Objective:

The objective of this lab exercise is for you to learn and understand how to implement fax over IP services in Cisco IOS voice gateways

Lab Purpose:

Fax relay and fax passthrough are used to allow faxes to be sent over IP networks

Lab Difficulty:

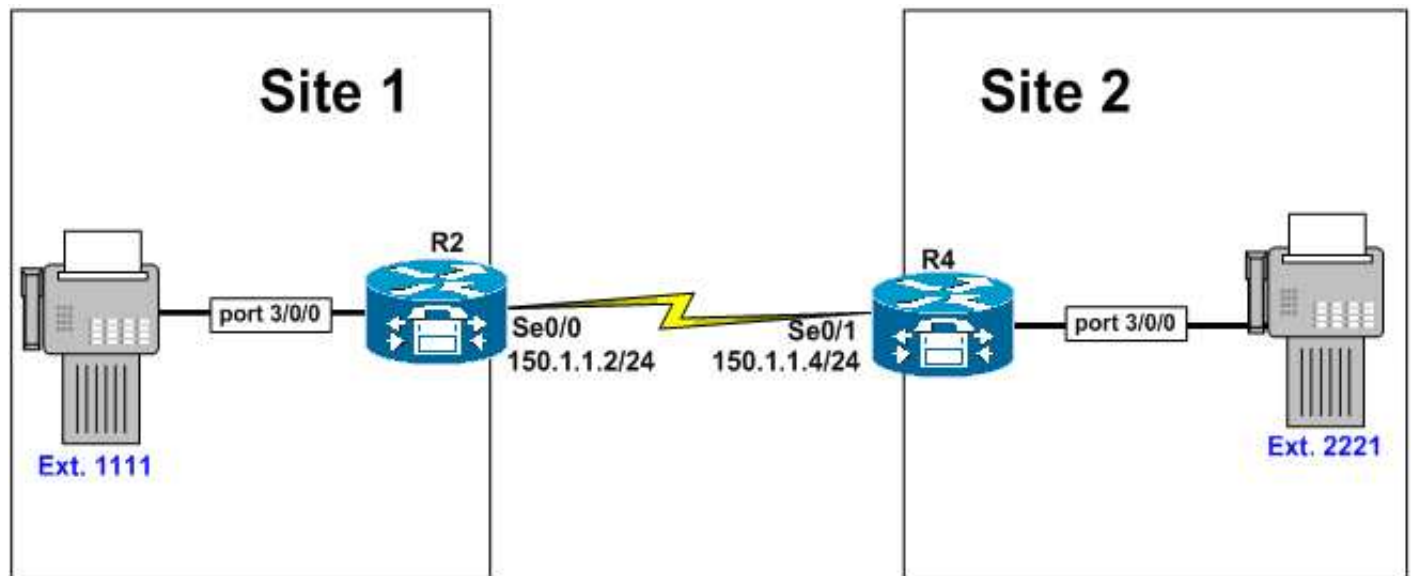
This lab has a difficulty rating of 5/10

Readiness Assessment:

When ready for your exam, you should be able to complete this lab in no more than 15 minutes

Lab Topology:

Please use the following topology to complete this lab exercise:



Lab 14 Configuration Tasks

Task 1:

Configure the hostnames and IP addresses on R2 and R4 as illustrated in the diagram. Configure R4 to provide clocking to R2. Configure the clock rate on R4 as 800Kbps

Task 2:

Configure POTS dial peers for the connected phones on R2 and R4 as illustrated in the diagram. Use any dial peer numbers you want

Task 3:

Configure VoIP dial peers on R2 and R4 for the extensions at either location. Use any dial peer numbers you want

Task 4:

Configure T.38 Fax relay on R2 for the VoIP dial peer created in Task 3. If the remote fax machine does not support this standard Cisco fax relay should be used

Task 5:

Configure T.38 Fax relay on R4 globally. If the remote fax machine does not support this standard Cisco fax relay should be used

Task 6:

Verify your configuration using the appropriate **show** and **debug** commands

Lab 14 Configuration and Verification

Task 1:

```
R2(config)#hostname R2
R2(config)#interface Serial0/0
R2(config-if)#description .Connected To R4 Serial 0/1.
R2(config-if)#ip address 150.1.1.2 255.255.255.0
```

```
R4(config)#hostname R4
R4(config)#interface Serial0/1
R4(config-if)#description .Connected To R2 Serial 0/0
R4(config-if)#ip address 150.1.1.4 255.255.255.0
R4(config-if)#clock rate 800000
```

Verify connectivity by performing a simple ping between the two routers

R2#**ping 150.1.1.4**

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 150.1.1.4, timeout is 2 seconds:

!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms

R4#**ping 150.1.1.2**

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 150.1.1.2, timeout is 2 seconds:

!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/8 ms

Task 2:

```
R2(config)#dial-peer voice 1 pots
R2(config-dial-peer)#destination-pattern 1111
R2(config-dial-peer)#port 3/0/0
R2(config-dial-peer)#exit
```

```
R4(config)#dial-peer voice 1 pots
R4(config-dial-peer)#destination-pattern 2221
R4(config-dial-peer)#port 3/0/0
R4(config-dial-peer)#exit
```

Task 3:

```
R2(config)#dial-peer voice 2 voip
R2(config-dial-peer)#destination-pattern 2221
R2(config-dial-peer)#session target ipv4:150.1.1.4
R2(config-dial-peer)#exit
```

```
R4(config)#dial-peer voice 2 voip
```

```
R4(config)#dial-peer voice 2 voip
R4(config-dial-peer)#destination-pattern 1111
R4(config-dial-peer)#session target ipv4:150.1.1.2
R4(config-dial-peer)#exit
```

Task 4:

```
R2(config)#dial-peer voice 2
R2(config-dial-peer)#fax protocol t38 fallback cisco
R2(config-dial-peer)#exit
```

Task 5:

```
R4(config)#voice service voip
R4(conf-voi-serv)#fax protocol t38 fallback cisco
R4(conf-voi-serv)#exit
```

Task 6:

If you have physical access to either fax machine, verify your configuration by sending a fax and using the **show call active fax** command to verify fax operation. This is illustrated in the following output for a fax from extension 1111 to extension 2221:

```
R2#show call active fax compact
<callID> A/O FAX T<sec> Codec type Peer Address IP R<ip>:<udp>
Total call-legs: 1
      14 ANS FAX T32 7200 TELE P1111
```

Alternatively, the **show voice call summary** command can also be used:

```
R2#show voice call summary
PORT      CODEC  VAD VTSP STATE          VPM STATE
=====
3/0/0      t38      n S_FAX          FXSLS_CONNECT
3/0/1      -      - -          FXSLS_ONHOOK
3/1/0      -      - -          FXOLS_ONHOOK
3/1/1      -      - -          FXOLS_ONHOOK
```

The same can also be seen on the remote end:

```
R4#show call active fax compact
<callID> A/O FAX T<sec> Codec type Peer Address IP R<ip>:<udp>
Total call-legs: 1
      14 ORG FAX T11 7200 TELE P2221
```

```
R4#
R4#show voice call summary
PORT      CODEC  VAD VTSP STATE          VPM STATE
=====
3/0/0      t38      n S_FAX          FXSLS_CONNECT
3/0/1      -      - -          FXSLS_ONHOOK
3/1/0      -      - -          EM_ONHOOK
3/1/1      -      - -          EM_ONHOOK
```

Final Relevant Configuration R2:

```
R2#show running-config
Building configuration...
```

```
Current configuration : 1519 bytes
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
```

```

!
!
!
interface Serial0/0
description .Connected To R4 Serial 0/1.
ip address 150.1.1.2 255.255.255.0
no fair-queue
!
!
!
!
voice-port 3/0/0
!
voice-port 3/0/1
!
voice-port 3/1/0
!
voice-port 3/1/1
!
!
!
!
dial-peer voice 1 pots
destination-pattern 1111
port 3/0/0
!
dial-peer voice 2 voip
destination-pattern 2221
session target ipv4:150.1.1.4
fax protocol t38 ls-redundancy 0 hs-redundancy 0 fallback cisco

```

Final Relevant Configuration R4:

R4#**show running-config**

Building configuration...

Current configuration : 1514 bytes

```

!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R4
!
!
!
!
voice service voip
fax protocol t38 ls-redundancy 0 hs-redundancy 0 fallback cisco
!
!
!
!
interface Serial0/1
description .Connected To R2 Serial 0/0
ip address 150.1.1.4 255.255.255.0
clock rate 800000
!
!
!
!
voice-port 3/0/0
!
voice-port 3/0/1
!

```

```
.  
voice-port 3/1/0  
!  
voice-port 3/1/1  
!  
!  
!  
!  
dial-peer voice 1 pots  
destination-pattern 2221  
port 3/0/0  
!  
dial-peer voice 2 voip  
destination-pattern 1111  
session target ipv4:150.1.1.2
```



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